## NSF Press Release

**NSF PR 97-10 - February 11, 1997**

**Media contact:** Bill Noxon (703) 306-1070 wnoxon@nsf.gov
**Program contact:** David Schindel (703) 306-1040 dschinde@nsf.gov

*This material is available primarily for archival purposes. Telephone numbers or other contact information may be out of date; please see current contact information at media contacts.*

---

### NSF Rewards Universities which Link Discovery and Education

Picture an ideal university: it has a pervasive culture promoting collaborative research between professors and students; there are internet links between research labs, libraries and students; and there is an emphasis on discovery-based learning techniques throughout science and engineering curricula.

This should be the norm. Often, however, it is not.

A top priority of the National Science Foundation (NSF) is to stimulate new thinking at colleges and universities on how to better link research with education.

NSF has taken a major step to meet this priority by announcing its first-ever ***Recognition Awards for the Integration of Research and Education*** (RAIRE) made to ten research-intensive universities which have made substantial commitments to integrating research and education.

NSF has named the Universities of Arizona, Delaware, Michigan, Missouri and Oregon, along with Carnegie Mellon, Duke and Kansas State Universities, the University of California in Los Angeles (UCLA) and The State University of New York at Stony Brook (SUNY) to receive the recognition awards. In addition to setting a climate which has set the tone and agenda for change, these universities have produced significant achievements beyond individual and department contributions.

NSF is awarding grants of $500,000 for three years to these institutions. The grants allow considerable flexibility for

institutions to continue innovative work built upon past achievements. Grants are also flexible on how universities may document, communicate and share outcomes of their efforts nationwide through such venues as articles, reports, web sites, workshops, conferences and other outlets.

Representatives of the winning institutions will be officially honored in a ceremony at a meeting of the National Science Board on Feb. 21 at NSF headquarters in Arlington, Va.

NSF officials say that links between research and education are more important now than ever because today's students will spend much of their careers in the 21st Century coping with open-ended challenges and opportunities requiring highly developed analytical skills.

More than 100 of 137 eligible research-oriented institutions applied for the recognition awards.

-NSF-

---

Editors: Information on the ***Recognition Awards for the Integration of Research and Education*** may be found on the NSF Home Page at http://web.archive.org/web/20030426030016/http://www.nsf.gov/ by clicking on two sites, Office of the Director (OSTI), and on FastLane (where awards are listed and information on projects is located).

**Recognition Awards for the Integration of Research and Education**

A select group of ten universities have been chosen for the National Science Foundation's (NSF) first-ever ***Recognition Awards for the Integration of Research and Education***.

The awards recognize demonstrated leadership, innovation and achievement in developing programs institution-wide which integrate research and education activities.

Grants given under the Recognition Awards are for three years, at $500,000 each.

**The University of Arizona**. This state university has: revised its tenure and promotion guidelines to consider science (and math) education scholarship; established a Science and Education Promotion and Tenure Committee which ensures that education issues are considered on a par with research performance in promotion and tenure decisions; and demonstrated a commitment to infusing research into the undergraduate experience in both lower and upper divisions, particularly in the biology program.

**The University of California-Los Angeles (UCLA)**. This large urban university with its enormous and diverse student enrollment, is using a systemic approach to integrate research and education through: discovery-based courses through its Office of Instructional Development; and facilitating one-on-one collaborative research between faculty and first- and second-year students from underrepresented groups, as well as students from two-year colleges.

**Carnegie Mellon University**. This private university in Pittsburgh, Penn. has made cross-disciplinary problem-solving a core

activity in the undergraduate curriculum. A Center for Teaching Excellence and a Center for Innovation in Learning encourage and support faculty efforts to use problem-solving as a vehicle for learning. Students are able to pursue indepen-dent research and study through courses, paid work-study, senior honors programs and internships. The university provides significant support for undergraduate research projects and organizes a student research symposium at which 200 student projects were recently presented.

**The University of Delaware**. The university systematically engages as many under- graduates as possible in meaningful research projects with faculty. All senior research theses are read and evaluated by a Faculty Board. Recognizing that not all students will have access to true research experiences, the university provides discovery-based courses for all students. More than 90 percent of the science and mathematics faculty participate, as do more than 60 percent of the total faculty.

**Duke University**. Duke integrates research and education into all aspects of university life. A Center for Teaching and Learning has developed discovery-based courses and encourages transfer of cognitive research results into classroom practices. A Preparing Future Faculty program seeks to introduce graduate students to effective teaching methods. A new science building juxtaposes classroom teaching and faculty research. Teaching effectiveness is now a consideration in faculty salary, promotion and tenure decisions. Campus networking (including dorm rooms) provides access to Web-based course resources and linkages to faculty research.

**Kansas State University**. This Midwest institution has focused efforts to integrate research and discovery-based learning into the undergraduate education of future K-12 teachers and into post-graduate development of in-service K-12 teachers. Innovative curricula in genetics and quantum physics are serving as examples of the university's vision to expand this approach to all students.

**The University of Michigan**. The university is engaging students in research experiences early in their undergraduate careers by implementing institution-wide change. Special encouragement is given to female and minority students, groups that are traditionally underrepresented in science and engineering. First and second year students are electing to become and remain science majors in increasing numbers because of Michigan's collaborative research with faculty and graduate students and the creation of living/learning/research communities.

**The University of Missouri**. The university is integrating research and education through comprehensive, systemic programs such as: discovery-based courses for all undergraduates; preparing all future K-12 teachers to use discovery-based learning methods; providing all honors students and science majors with a "crowning point" experience; mechanisms to encourage and support faculty members who participate in these integrative activities; and establishing residential learning communities that promote and reinforce group research.

**The State University of New York (SUNY) at Stony Brook**. SUNY's research collaboration between students and faculty has been enhanced by an undergraduate research office. Undergraduate research programs for first-year women and minority students have led to increased retention in these traditionally underrepresented groups. Graduate students are trained to use research and discovery-based activities in their teaching.

**The University of Oregon**. The university has found innovative uses for interactive computer courseware, shared research data libraries made available for exploration by students as well as computer networking and advanced educational technology. These learning tools -- simulations, interactive courseware, and access to data from faculty research -- can provide discovery-based learning opportunities to non-science students in large introductory science survey courses, thereby

increasing the level of scientific literacy of the entire undergraduate student body.

**National Science Foundation**
**Office of Legislative and Public Affairs**
**4201 Wilson Boulevard**
**Arlington, Virginia 22230, USA**
**Tel: 703-292-8070**
**FIRS: 800-877-8339 | TDD: 703-292-5090**